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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, HOAI AN D

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/570,150	<b>Applicant(s)</b> PETERSEN ET AL.	
	<b>Examiner</b> HOAI-AN D. NGUYEN	<b>Art Unit</b> 2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2006 (Preliminary Amendment).
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-14 and 16-20 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/1/06 &amp; 3/29/06</u> .                                    | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

1. Receipt is acknowledged of the Preliminary Amendment filed on March 1, 2006. Claims 1-10 are cancelled; and claims 11-20 are pending in the application.

### ***Specification***

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR  
DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A  
COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(g) BRIEF SUMMARY OF THE INVENTION.

(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because it does not commence on a separate sheet, and it contains a legal phraseology such as “comprising” on line 2. Correction is required. See MPEP § 608.01(b).

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 11, 12, 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Kasdan et al. (US 4,093,866 A).

Kasdan et al. teaches a diffraction pattern amplitude analysis for use in fabric inspection comprising:

With regard to claim 11, a pulse height analyzer (FIG. 2, analysis system incorporated in the processor 19 of FIG. 1) for determination of the pulse height distribution of electronic pulses, comprising a set of comparators (FIG. 6 in view of FIG. 2, a series of individual comparators 56) with a common input (FIG. 6, common video signal) for analog to digital conversion of the electronic pulses, a set of latches (FIG. 6 in view of FIG. 2, a series of latches 57) wherein the inputs of the latches are connected to the outputs of respective comparators for recording passage of the corresponding threshold voltages by the rising edge of a pulse, a priority encoder (FIG. 6, enabling circuits 64) connected to the latch outputs for determination of a pulse height category (FIG. 6, Bin 0, Bin 1, Bin 2, Bin 3, Bin 4, Bin 5, Bin 6 and Bin 7) consisting of pulses with a

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pulse height within a pulse height interval defined by respective threshold voltages ((0v, 1.25v) for Bin 0, ((1.25v, 2.5v) for Bin 1, and so forth for bin 2, bin 3, bin 4, bin 5, bin 6 and finally bin 7, wherein the reference voltages progressively increase in steps of 1.25 volts), and a micro controller (FIGS. 1, 2 and 6, processor 19 includes a series of counters 58) that is adapted to count the number of pulses within each pulse height category (From column 7, line 52 to column 8, line 27).

With regard to claim 12, the thresholds (1.25v, 2.5v, and so forth, wherein the reference voltages progressively increase in steps of 1.25 volts) of the comparators are non-equidistant (Column 8, lines 38-44).

With regard to claim 16, a plurality of sets of comparators (FIG. 6 in view of FIG. 2, a series of individual comparators 56) for pulse height determination of input pulses of different amplification (FIG. 4,  $V_0$ ,  $V_1$ ,  $V_2$ , and so on).

With regard to claim 17, circuitry (FIG. 6 in view of FIG. 2, fixed frequency clock pulse generator 23) for resetting the latches (FIG. 6 in view of FIG. 2, a series of latches 57) a predetermined time period after start of a pulse, the time period being independent of the pulse height and the pulse width (Column 8, lines 1-15).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasdan et al. in view of Koch et al. (US 4,817,208 A) and Bee et al. (US 5,528,303 A).

On one hand, Kasdan et al. teaches all that is claimed as discussed in the above rejection of claims 11, 12, 16 and 17 including pulse height analyzer (FIG. 2, analysis system incorporated in the processor 19 of FIG. 1), but it does not specifically teach the following feature:

- A filter for filtering the electronic pulses providing a substantially constant delay from pulse start to maximum pulse amplitude of the filtered pulse, and for provision of the filtered pulses to the common input of the comparators.
- A filter for filtering the electronic pulses providing an output signal containing the filtered pulses with a DC-value substantially equal to zero.

On the other hand, Koch et al. teaches a fiber optic receiver comprising:

With regard to claim 13, a filter (Figure , DC blocking capacitor 58 and low pass filter 59) for filtering the electronic pulses providing a substantially constant delay and for provision of the filtered pulses to an input of a comparator (Figure , comparator U2) (Column 4, lines 3-35).

With regard to claim 14, a filter (Figure , DC blocking capacitor 58 and low pass filter 59) for filtering the electronic pulses providing an output signal containing the filtered pulses with a DC-value substantially equal to zero (by using DC blocking capacitor 58) (Column 4, lines 3-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the diffraction pattern amplitude analysis for use in fabric inspection of Kasdan et al. to incorporate the teaching of employing a filter for filtering the electronic pulses providing a substantially constant delay and an output signal containing the

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filtered pulses with a DC-value substantially equal to zero taught by Koch et al. since Koch et al. teaches that such an arrangement is beneficial both to removes excess bandwidth from the amplitude limited pulsed voltage signal to reduce noise and to provide a constant group delay to minimize pulse overshoot and ringing as disclosed in column 4, lines 3-35, and to provide reduced ripple in the output with substantially constant delay through the filter to assure that the sync pulses do not exhibit time jitter with variations in amplitude, and to assure that the delay through the filter is substantially constant as disclosed in Bee et al., column 5, lines 32-38.

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kasdan et al. in view of Iinuma (US 4,879,464 A).

On one hand, Kasdan et al. teaches all that is claimed as discussed in the above rejection of claims 11, 12, 16 and 17 including pulse height analyzer (FIG. 2, analysis system incorporated in the processor 19 of FIG. 1), but it does not specifically teach the following feature:

- An integrated circuit comprising a pulse height analyzer.

On the other hand, Iinuma teaches a radiation imaging apparatus comprising:

With regard to claim 18, pulse-height analyzer sections 26 (FIG. 6) can be manufactured in an IC (integrated circuit) (Column 10, lines 17-44).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the diffraction pattern amplitude analysis for use in fabric inspection of Kasdan et al. to incorporate the teaching of manufacturing a pulse height analyzer using the recent semiconductor technology, for instance, Large Scale Integrated technology taught by Iinuma since Iinuma teaches that such an arrangement is beneficial to provide a circuit that is compact, highly reliable and which has a low cost as disclosed in column 10, lines 17-44.



9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kasdan et al. in view of Miers (US 5,719,667 A).

On one hand, Kasdan et al. teaches all that is claimed as discussed in the above rejection of claims 11, 12, 16 and 17 including the pulse height analyzer (FIG. 2, analysis system incorporated in the processor 19 of FIG. 1), but it does not specifically teach the following feature:

- A field programmable gate array comprising a pulse height analyzer.

On the other hand, Miers teaches an apparatus for filtering a laser beam in an analytical instrument comprising:

With regard to claim 19, a field programmable gate array (FIG. 14, FPGA 1308) comprising a pulse height analyzer (Column 43, lines 49-52).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the diffraction pattern amplitude analysis for use in fabric inspection of Kasdan et al. to incorporate the teaching of a field programmable gate array comprising a pulse height analyzer taught by Miers since such an arrangement is beneficial to provide desirable and exemplary choices for a specific configuration of the pulse height analyzer for a field programmable gate array.

10. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kasdan et al. in view of Tumer et al. (US 2003/0105397 A1).

On one hand, Kasdan et al. teaches all that is claimed as discussed in the above rejection of claims 11, 12, 16 and 17 including the pulse height analyzer (FIG. 2, analysis system

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incorporated in the processor 19 of FIG. 1), but it does not specifically teach the following feature:

- An application specific integrated circuit comprising a pulse height analyzer.

On the other hand, Tumer et al. teaches an X-ray and gamma ray detector readout system comprising:

With regard to claim 20, an application specific integrated circuit (FIG. 1) comprising a pulse height analyzer (Paragraphs [0058] and [0125]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the diffraction pattern amplitude analysis for use in fabric inspection of Kasdan et al. to incorporate the teaching of an application specific integrated circuit comprising a pulse height analyzer taught by Tumer et al. since Tumer et al. teaches that such an arrangement is beneficial to provide a complete, highly integrated, low power readout ASIC optimized for high resolution while minimizing system complexity and cost which are desirable and exemplary choices for a specific configuration of the pulse height analyzer for an ASIC as disclosed in paragraphs [0055], [0058] and [0125].

### ***Allowable Subject Matter***

11. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

- The primary reason for the indication of the allowability of claim 15 is the inclusion therein, in combination as currently claimed, of the limitation of a current source, preferably a constant current source, for connection to electrodes contacting an electrolyte in two chambers mutually connected by an orifice for Coulter counting of particles, and wherein the thresholds of the comparators are dependent on the actual value of the generated electrode current whereby possible variations of the electrode current are substantially cancelled by corresponding variations of the thresholds. This limitation is found in claim 15 is neither disclosed nor taught by the prior art of record, alone or in combination.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant's attention is invited to the followings whose inventions disclose similar devices.

- Di Rocco (US 3,634,688 A) teaches a multimode spectral analyzer.
- Alexander (US 3,790,767 A) teaches a pulse analyzing tester.
- Bollero et al. (US 4,365,193 A) teaches an overvoltage-pulse analyzer.
- Musin et al. (US 4,541,070 A) teaches a pulse characteristic meter.

### **CONTACT INFORMATION**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAI-AN D. NGUYEN whose telephone number is (571) 272-2170. The examiner can normally be reached on M-F (8:00 - 5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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